glycol, 1 mol of poly(ethylene glycol) of the average molecular weight 5,000 Daltons, 1 mol of poly(ethylene glycol) of the average molecular weight 15,000 Daltons and 0.003 mol of dibutyl dilauryl tin. The reaction mixture is heated to 100° C. for about 2 hours, and then it is transferred to an excess of cold water. The swelled pellets of tie hydrogel-forming segmented polyurethane are extracted in cold water for 2 days to remove the water-soluble components. The polymer component A is then dried and ground to a coarse powder.

3 grams of the component A is dissolved in 97 grams of 1:1 by weight mixture of THF and toluene. 0.4 grams of poly(methylvinylether) of molecular weight 100,000 Daltons is added. The solution is used to coat rubber to achieve a hydrophilic surface which is very slippery and lubricious in cold water but adhesive at an elevated temperature. This property is useful, for instance, for skin adhesives.

EXAMPLE 6

Foley catheter made from natural rubber is dipped into 3% solution of the polymeric composition from the Example 4 dissolved in the ethanol (containing 4% of water)-THF 9:1 by weight. The solution is dried at 20° C. and 80% relative humidity.

Once the surface film loses its tackiness, the drying is finished in an oven at 75° C. The resulting glossy surface layer is less than 0.1 mm thick. It is firmly adherent to the rubber surface both in the dry and wet state. Even the dry layer is sufficiently flexible to withstand the catheter flexing and inflation of the rubber balloon without cracking or flaking off.

The surface layer hydrates quickly and becomes slippery within several seconds after immersion in water. The lubricious layer maintains its properties even after a prolonged (30 days) immersion in isotonic saline at 37° C.

EXAMPLE 7

20 grams of the polymer composition from the Example 4 is dissolved in 900 grams of ethanol to form a clear solution. 80 grams of water is added to this solution while stirring. The liquid becomes cloudy during the water addition.

The resulting liquid is used for coating of metal surfaces, such as stainless-steel hypodermic needles and guidewires made from a Nickel-Titanium alloy.

The very thin layer (below approx. 5 microns) thus formed is firmly adherent to the substrate both in dry and wet state. The wet friction of the surface is considerably decreased due to the coating.

EXAMPLE 8

The guidewire with the hydrophilic coating from the Example 7 is sterilized by electron beam of energy 4 MeV at various radiation doses from about 0.5 MRad to about 15 MRad.

The dry and wet adhesion and the wet friction of the coated guidewires is tested prior and after irradiation. The samples irradiated by doses above about 0.75 MP, ad show improved wet friction, with optimum result between about 1.5 and 5 MRad. The coatings irradiated by more than about 10 MRad are damaged and their adhesion to the substrate is decreased.

EXAMPLE 9

The Foley catheter from Example 6 is sterilized by gamma irradiation from ^{60}Co source at the dose of 2.7 MRad. This irradiation improved the catheter wet lubricity without any detectable degradation of other properties (adhesion, flexibility, color etc.).

EXAMPLE 10

1 gram of azoadamantane and 0.5 grams of benzalconium chloride is admixed into 1000 grams of the dipping solution from the Example 7. The solution is then sprayed onto glass or ceramic surfaces such as mirrors, windows and wall tiles. The hydrophilic coating thus formed is thinner than 1 micron in dry state and adherent to the surface in both wet and dry state. The surfaces with the hydrophilic coating have improved resistance against fogging and mildew accumulation as well as improved cleanability.

We claim:

1. A hydrophilic coating composition for hydrophobic substrates, comprising:

A mixture of a hydrogel-forming polymeric component A and a polymeric water-soluble component B in a common solvent C, wherein the said polymer component A is capable of forming a hydrogel containing 50% to 99% water in equilibrium, and wherein the said component A is a segmented copolymer of a general formula

$$T_1\text{—}X\text{—}T_2$$

wherein T_1, T_2 are terminal hydrophilic segments and the central section X comprises at least one hydrophobic polymer sequence.

2. A hydrophilic coating composition for hydrophobic substrate according to claim 1 wherein at least one of the said terminal sequence T_1 and/or T_2 is a hydrophilic sequence comprising at least 25 hydrophilic monomer units selected from the group consisting of acrylic acid, methacrylic acid, hydrophilic esters of acrylic or methacrylic acid, hydrophilic amides of acrylic or methacrylic acids, alkylene oxide, ethylene oxide, maleic acid, styrenesulfonic acid, vinylsulfonic acid, vinylpyrrolidone, methylvinylether and saccharide units.

3. A hydrophilic coating composition for hydrophobic substrates according to claim 1 wherein the said central section X of the component A is a water-insoluble polymer chain described by the formula

$$\text{—}(HB\text{—}L)_n\text{—}HB\text{—}$$

where HB is a substantially hydrophobic sequence block and L is the linking sequence, whereas $\underline{n}$ is a number between 0 and 15.

4. A hydrophilic coating composition for hydrophobic substrates according to claim 1 wherein the said polymeric components A and B are present in a weight ratio between 9:1 and 1:3.

5. A hydrophilic coating composition for hydrophobic substrates according to claim 3 wherein the said hydrophobic blocks HB are polymers and copolymers selected from the group consisting of polymers of esters, N-alkylacrylamides, nitriles of acrylic acid, nitriles of methacrylic acid, styrene, methyl styrene, vinyl acetate, vinyl formal, and vinylbutyral, and polyamides, polyesters, polyepoxides, aliphatic polyurethanes, cycloaliphatic polyurethanes, aromatic polyurethanes, aliphatic polyureas, cycloaliphatic polyureas and aromatic polyureas.

6. A hydrophilic coating composition for hydrophobic substrates according to claim 1 wherein the number average